

PATENT CLAIMS

1. A borosilicate glass of high chemicals resistance, characterized by a composition (in % by weight, based on oxide) of:

| | | |
|----|---|------------|
| | SiO ₂ | 70 - 77 |
| | B ₂ O ₃ | 6 - < 11.5 |
| | Al ₂ O ₃ | 4 - 8.5 |
| 10 | Li ₂ O | 0 - 2 |
| | Na ₂ O | 4 - 9.5 |
| | K ₂ O | 0 - 5 |
| | with Li ₂ O + Na ₂ O + K ₂ O | 5 - 11 |
| | MgO | 0 - 2 |
| 15 | CaO | 0 - 2.5 |
| | with MgO + CaO | 0 - 3 |
| | ZrO ₂ | 0 - < 0.5 |
| | CeO ₂ | 0 - 1 |

- 20 and, if appropriate, standard refining agents in standard amounts.

2. The borosilicate glass as claimed in claim 1, characterized by a composition (in % by weight, based on oxide) of:

| | | |
|----|---|--------------|
| | SiO ₂ | 70.5 - 76.5 |
| | B ₂ O ₃ | 6.5 - < 11.5 |
| | Al ₂ O ₃ | 4 - 8 |
| 30 | Li ₂ O | 0 - 1.5 |
| | Na ₂ O | 4.5 - 9 |
| | K ₂ O | 0 - 5 |
| | with Li ₂ O + Na ₂ O + K ₂ O | 5.5 - 10.5 |
| | MgO | 0 - 1 |
| 35 | CaO | 0 - 2 |
| | with MgO + CaO | 0 - 3 |
| | ZrO ₂ | 0 - < 0.5 |
| | CeO ₂ | 0 - 1 |

and, if appropriate, standard refining agents in standard amounts.

3. The borosilicate glass as claimed in claim 1 [or 2],
5 characterized in that it additionally contains (in % by weight, based on oxide):

| | | |
|----|----------------|---------|
| | SrO | 0 - 1.5 |
| | BaO | 0 - 1.5 |
| 10 | with SrO + BaO | 0 - 2 |
| | ZnO | 0 - 1. |

4. The borosilicate glass as claimed in [at least one
15 of claims 1 to 3], ^{claim 1} characterized in that it additionally contains (in % by weight, based on oxide):

| | | |
|--|---|--------|
| | Fe ₂ O ₃ + Cr ₂ O ₃ + CoO | 0 - 1 |
| | TiO ₂ | 0 - 3. |

- 20 5. The borosilicate glass as claimed in [at least one of claims 1 to 4], ^{claim 1} characterized in that, apart from inevitable impurities, it is free of As₂O₃ and Sb₂O₃.

- 25 6. The borosilicate glass as claimed in [at least one of claims 1 to 5], ^{claim 1} having a coefficient of thermal expansion $\alpha_{20/300}$ of between > 5 and $6.0 \times 10^{-6}/K$, in particular between > 5.3 and $5.9 \times 10^{-6}/K$, and a working point V_A of at most $1180^\circ C$.

- 30 7. The use of the borosilicate glass as claimed in [at least one of claims 1 to 6], ^{claim 1} as sealing glass for Fe-Co-Ni alloys.

- 35 8. The use of the borosilicate glass as claimed in [at least one of claims 1 to 6], ^{claim 1} as instrument glass for laboratory applications and for the construction of chemical installations.

9. The use of the borosilicate glass as claimed in (at least one of claims 1 to 6 ^{claim 1} as primary packaging material for pharmaceuticals, for example as ampoule glass.

PATENT CLAIMS

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5 on oxide) of:

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| | SiO ₂ | 70 - 77 |
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| | K ₂ O | 0 - 5 |
| | with Li ₂ O + Na ₂ O + K ₂ O | 5 - 11 |
| | MgO | 0 - 2 |
| 15 | CaO | 0 - 2.5 |
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| | CeO ₂ | 0 - 1 |

- 20 and, if appropriate, standard refining agents in standard amounts.

2. The borosilicate glass as claimed in claim 1, characterized by a composition (in % by weight, based
25 on oxide) of:

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| | SiO ₂ | 70.5 - 76.5 |
| | B ₂ O ₃ | 6.5 - < 11.5 |
| | Al ₂ O ₃ | 4 - 8 |
| 30 | Li ₂ O | 0 - 1.5 |
| | Na ₂ O | 4.5 - 9 |
| | K ₂ O | 0 - 5 |
| | with Li ₂ O + Na ₂ O + K ₂ O | 5.5 - 10.5 |
| | MgO | 0 - 1 |
| 35 | CaO | 0 - 2 |
| | with MgO + CaO | 0 - 3 |
| | ZrO ₂ | 0 - < 0.5 |
| | CeO ₂ | 0 - 1 |

and, if appropriate, standard refining agents in standard amounts.

3. The borosilicate glass as claimed in claim 1, characterized in that it additionally contains (in % by weight, based on oxide):

| | | |
|----|----------------|---------|
| | SrO | 0 - 1.5 |
| | BaO | 0 - 1.5 |
| 10 | with SrO + BaO | 0 - 2 |
| | ZnO | 0 - 1. |

4. The borosilicate glass as claimed in claim 1, characterized in that it additionally contains (in % by weight, based on oxide):

| | | |
|--|--|--------|
| | $\text{Fe}_2\text{O}_3 + \text{Cr}_2\text{O}_3 + \text{CoO}$ | 0 - 1 |
| | TiO_2 | 0 - 3. |

5. The borosilicate glass as claimed in claim 1, characterized in that, apart from inevitable impurities, it is free of As_2O_3 and Sb_2O_3 .

6. The borosilicate glass as claimed in claim 1 having a coefficient of thermal expansion $\alpha_{20/300}$ of between > 5 and $6.0 \times 10^{-6}/\text{K}$, in particular between > 5.3 and $5.9 \times 10^{-6}/\text{K}$, and a working point V_A of at most 1180°C .

7. The use of the borosilicate glass as claimed in claim 1, as sealing glass for Fe-Co-Ni alloys.

8. The use of the borosilicate glass as claimed in claim 1 as instrument glass for laboratory applications and for the construction of chemical installations.

9. The use of the borosilicate glass as claimed in claim 1 as primary packaging material for pharmaceuticals, for example as ampoule glass.